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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,267	08/10/2001	Christopher D. Creech	018512-006510US	6230
20350	7590	09/29/2004	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			LI, RUIXIANG	
			ART UNIT	PAPER NUMBER
			1646	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/927,267	Applicant(s) CREECH ETAL.	
	Examiner Ruixiang Li	Art Unit 1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/12/2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,8,19 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,8,19 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input checked="" type="checkbox"/> Other: <u>Sequence alignment</u> . |

DETAILED ACTION

Status of Application, Amendments, and/or Claims

It is noted that Applicants filed appeal brief on 7/12/2004. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Applicants' amendment after final filed on March 19, 2004 has been entered in full. Claims 1, 3, and 19 have been amended. Claims 2, 4, and 7 have been canceled. Claims 1, 3, 8, 19, and 20 are pending and under consideration.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office Action.

Withdrawn Rejections

All the rejections of record have been withdrawn in view of Applicants' amendment to the claims and argument.

Claim Rejections Under 35 U. S. C. § 102 (e)

Claims 1, 3, 8, 19, and 20 under 35 U.S.C. 102(e) as being anticipated by Guegler et al. (US 2003/0013156 A1, publication date: January 16, 2003; priority date: June 13, 2000).

Art Unit: 1646

Guegler et al. teach a transporter protein (SEQ ID NO: 2) that is related to the cyclic nucleotide-gated ion channel subfamily (see, e.g., [0002] and [0060]) and that is 100% identical to the polypeptide of SEQ ID NO: 1 of the present invention (see attached sequence alignment and Figure 2 of 60/211,223). Guegler et al. also teach an isolated nucleic acid comprising a nucleotide sequence that encodes the protein, a nucleic acid vector, and a host cell containing the vector (see claims 4-7). Guegler et al. further teach an isolated nucleic acid, which is identical to SEQ ID NO: 3 (see attached sequence in Figure 1 of 60/211,223). It is noted that the nucleic acid sequences, which are present in US 2003/0013156 A1 (application 10/207, 951) and its parent application 09/735, 932, comprises a nucleotide sequence that is 99.8% identical to SEQ ID NO: 3 (see attached sequence alignment). However, the provisional application 60/211, 223 does disclose an isolated nucleic acid, which is identical to SEQ ID NO: 3, as noted above. Accordingly, the reference of Guegler et al. meets the limitations of claims 1, 3, 8, 19, and 20.

Conclusion

No claims are allowed.

Advisory Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruixiang Li whose telephone number is (571) 272-0875. The examiner can normally be reached on Monday through Friday from 8:30 am to 5:00

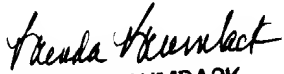
Art Unit: 1646

pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback, can be reached on (571) 272-0961.

Communications via Internet e-mail regarding this application, other than those under 35 U.S.C. 132 or which otherwise require a signature, may be used by the applicant and should be addressed to [Brenda.Brumback@uspto.gov]. All Internet e-mail communications will be made of record in the application file. PTO employees do not engage in Internet communications where there exists a possibility that sensitive information could be identified or exchanged unless the record includes a properly signed express waiver of the confidentiality requirements of 35 U.S.C. 122. This is more clearly set forth in the Interim Internet Usage Policy published in the Official Gazette of the Patent and Trademark on February 25, 1997 at 1195 OG 89.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1600.

Ruixiang Li, Ph.D.
Examiner
September 21, 2004


BRENDA BRUMBACK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Db 181 HNSCLYALSRVYGFEGDANVYPPDPAQGEERLRQYLISGFYSTLLITVGDTPPAR 240
 QY 241 EEEYLFVWGDFLLAVMGFATIMGSMSSVYINMNTADAFAFDPHALVKKYMKLOHVRKLE 300
 Db 241 EEEYLFVWGDFLLAVMGFATIMGSMSSVYINMNTADAFAFDPHALVKKYMKLOHVRKLE 300
 QY 301 RRVIDWYQHLOINKKMTNEVALLOHLPERLRAEVAVSVHLSTLSRVQIFONCEASLLEEL 360
 Db 301 RRVIDWYQHLOINKKMTNEVALLOHLPERLRAEVAVSVHLSTLSRVQIFONCEASLLEEL 360
 QY 361 VLKIQPQYSPGEYVCKRGDIGEMYYIIRREGOLAVVADGITYAVLAGAGYFGEISIIIN 420
 Db 361 VLKIQPQYSPGEYVCKRGDIGEMYYIIRREGOLAVVADGITYAVLAGAGYFGEISIIIN 420
 QY 421 IKGNMGNRRRTANIKSLGYSDFLCLSKEDLREVLSYEPQACTIMEKREILLKKNKLDV 480
 Db 421 IKGNMGNRRRTANIKSLGYSDFLCLSKEDLREVLSYEPQACTIMEKREILLKKNKLDV 480
 QY 481 NAEAEIALQEAATESRLRGDQDDLOQTKFARLLAELESSALKIAYRIERLEWQTRMP 540
 Db 481 NAEAEIALQEAATESRLRGDQDDLOQTKFARLLAELESSALKIAYRIERLEWQTRMP 540
 QY 541 MPEDLAADDEGEPEEGTSKDEBGRASQEGPPGPE 575
 Db 541 MPEDLAADDEGEPEEGTSKDEBGRASQEGPPGPE 575

RESULT 2

US-09-927-267-1
 ; Sequence 1, Application US/09927267
 ; Publication No. US20020182691A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Cretech, Christopher D.
 ; APPLICANT: Jegla, Timothy J.
 ; APPLICANT: ICGen, Inc.
 ; TITLE OF INVENTION: CNG2B: A No. US20020182691A1 Human Cyclic Nucleotide-Gated Ion
 ; TITLE OF INVENTION: Channel
 ; FILE REFERENCE: 018512-006510US
 ; CURRENT APPLICATION NUMBER: US/09/927,267
 ; CURRENT FILING DATE: 2001-08-10
 ; PRIOR APPLICATION NUMBER: US 60/226,253
 ; PRIOR FILING DATE: 2000-08-17
 ; NUMBER OF SEQ ID NOS: 16
 ; SOFTWARE: Patent Ver. 2.1
 ; SEQ ID NO 1
 ; LENGTH: 575
 ; TYPE: PRT
 ; ORGANISM: Homo sapiens
 ; FEATURES:
 ; OTHER INFORMATION: cyclic nucleotide-gated cation channel 2B (CNG2B)
 US-09-927-267-1

Query Match 100.0%; Score 2989; DB 9; Length 575;
 Best Local Similarity 100.0%; Pred. No. 2.8e-266;
 Matches 575; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MSQDTKVTETSSPPAPSKARKLLPYLDPSGDYYWMLNTWVFPVYMLIILVCAACPD 60
 Db 1 MSQDTKVTETSSPPAPSKARKLLPYLDPSGDYYWMLNTWVFPVYMLIILVCAACPD 60
 QY 61 LQHGVLVAMLVLDYSDLLYLDDMYRFTGFLGEGILLVVDKGRISSRVYRTWSFELDLA 120
 Db 61 LQHGVLVAMLVLDYSDLLYLDDMYRFTGFLGEGILLVVDKGRISSRVYRTWSFELDLA 120
 QY 121 SLMPDVVVYVLRGPHPTPLRLNRFAPRLFEAFDRTETRTAYPNAFRIAKMLLYIFVYI 180
 Db 121 SLMPDVVVYVLRGPHPTPLRLNRFAPRLFEAFDRTETRTAYPNAFRIAKMLLYIFVYI 180
 QY 181 HNSCLYALSRVYGFEGDANVYPPDPAQGEERLRQYLISGFYSTLLITVGDTPPAR 240
 Db 181 HNSCLYALSRVYGFEGDANVYPPDPAQGEERLRQYLISGFYSTLLITVGDTPPAR 240
 QY 241 EEEYLFVWGDFLLAVMGFATIMGSMSSVYINMNTADAFAFDPHALVKKYMKLOHVRKLE 300

Db 241 EEEYLFVWGDFLLAVMGFATIMGSMSSVYINMNTADAFAFDPHALVKKYMKLOHVRKLE 300
 QY 301 RRVIDWYQHLOINKKMTNEVALLOHLPERLRAEVAVSVHLSTLSRVQIFONCEASLLEEL 360
 Db 301 RRVIDWYQHLOINKKMTNEVALLOHLPERLRAEVAVSVHLSTLSRVQIFONCEASLLEEL 360
 QY 361 VLKIQPQYSPGEYVCKRGDIGEMYYIIRREGOLAVVADGITYAVLAGAGYFGEISIIIN 420
 Db 361 VLKIQPQYSPGEYVCKRGDIGEMYYIIRREGOLAVVADGITYAVLAGAGYFGEISIIIN 420
 QY 421 IKGNMGNRRRTANIKSLGYSDFLCLSKEDLREVLSYEPQACTIMEKREILLKKNKLDV 480
 Db 421 IKGNMGNRRRTANIKSLGYSDFLCLSKEDLREVLSYEPQACTIMEKREILLKKNKLDV 480
 QY 481 NAEAEIALQEAATESRLRGDQDDLOQTKFARLLAELESSALKIAYRIERLEWQTRMP 540
 Db 481 NAEAEIALQEAATESRLRGDQDDLOQTKFARLLAELESSALKIAYRIERLEWQTRMP 540
 QY 541 MPEDLAADDEGEPEEGTSKDEBGRASQEGPPGPE 575
 Db 541 MPEDLAADDEGEPEEGTSKDEBGRASQEGPPGPE 575

RESULT 3

US-10-207-951-2
 ; Sequence 2, Application US/10207951
 ; Publication No. US20030013156A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Karl GUEGLER et al.
 ; TITLE OF INVENTION: ISOLATED HUMAN TRANSPORTER PROTEIN,
 ; TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING HUMAN TRANSPORTER PROTEINS
 ; FILE REFERENCE: CLO00663CON
 ; CURRENT APPLICATION NUMBER: US/10/207,951
 ; CURRENT FILING DATE: 2002-07-31
 ; PRIOR APPLICATION NUMBER: 09/735,932
 ; PRIOR FILING DATE: 2000-12-14
 ; PRIOR APPLICATION NUMBER: 60/211,223
 ; PRIOR FILING DATE: 2000-06-13
 ; NUMBER OF SEQ ID NOS: 25
 ; SOFTWARE: FastSeq for Windows Version 4.0
 ; SEQ ID NO 2
 ; LENGTH: 575
 ; TYPE: PRT
 ; ORGANISM: Homo sapiens
 US-10-207-951-2

Query Match 100.0%; Score 2989; DB 14; Length 575;
 Best Local Similarity 100.0%; Pred. No. 2.8e-266;
 Matches 575; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

QY 1 MSQDTKVTETSSPPAPSKARKLLPYLDPSGDYYWMLNTWVFPVYMLIILVCAACPD 60
 Db 1 MSQDTKVTETSSPPAPSKARKLLPYLDPSGDYYWMLNTWVFPVYMLIILVCAACPD 60
 QY 61 LQHGVLVAMLVLDYSDLLYLDDMYRFTGFLGEGILLVVDKGRISSRVYRTWSFELDLA 120
 Db 61 LQHGVLVAMLVLDYSDLLYLDDMYRFTGFLGEGILLVVDKGRISSRVYRTWSFELDLA 120
 QY 121 SLMPDVVVYVLRGPHPTPLRLNRFAPRLFEAFDRTETRTAYPNAFRIAKMLLYIFVYI 180
 Db 121 SLMPDVVVYVLRGPHPTPLRLNRFAPRLFEAFDRTETRTAYPNAFRIAKMLLYIFVYI 180
 QY 181 HNSCLYALSRVYGFEGDANVYPPDPAQGEERLRQYLISGFYSTLLITVGDTPPAR 240
 Db 181 HNSCLYALSRVYGFEGDANVYPPDPAQGEERLRQYLISGFYSTLLITVGDTPPAR 240
 QY 241 EEEYLFVWGDFLLAVMGFATIMGSMSSVYINMNTADAFAFDPHALVKKYMKLOHVRKLE 300
 Db 241 EEEYLFVWGDFLLAVMGFATIMGSMSSVYINMNTADAFAFDPHALVKKYMKLOHVRKLE 300
 QY 301 RRVIDWYQHLOINKKMTNEVALLOHLPERLRAEVAVSVHLSTLSRVQIFONCEASLLEEL 360

10

100

Db	1499	GAAAGAGAGTACTCTTCAATGGTGGGCACTTCTCTGCGCCGTATGGGTTTGCCACC	1558
QY	781	ATCATGGGTAGCATGAGCTCTGTCACTTACAAATGAACACTGCAGATCCGGCTTTCTAC	840
Db	1559	ATCATGGGTAGCATGAGCTCTGTCACTTACAAATGAACACTGCAGATCCGGCTTTCTAC	1618
QY	841	CCAGATCATGCACTGTGTGAAGAAATACATGAAGCTGCGACAGCTCAACCGAAGCTGAG	900
Db	1619	CCAGATCATGCACTGTGTGAAGAAATACATGAAGCTGCGACAGCTCAACCGAAGCTGAG	1678
QY	901	CGGCGAGTTAATTGACTGGTATAGCACTCGGCACTCAACAAAGAAATGACCAAGAGTGA	960
Db	1679	CGGCGAGTTAATTGACTGGTATAGCACTCGGCACTCAACAAAGAAATGACCAAGAGTGA	1738
QY	911	GCCATCTTAAACGACCTTGCTGAGCGGCTCGCGGAGAAAGTGGCTGTGTCTGTGCACTG	1020
Db	1739	GCCATCTTAAACGACCTTGCTGAGCGGCTCGCGGAGAAAGTGGCTGTGTCTGTGCACTG	1798
QY	1021	TCCACTCTGAGCCGGGTGCACATCTTTGAAACTGTGAGGCGACGCTGCTGAGAGAGCTG	1080
Db	1799	TCCACTCTGAGCCGGGTGCACATCTTTGAAACTGTGAGGCGACGCTGCTGAGAGAGCTG	1858
QY	1081	GTGTGTGAAGCTGCAGCCCCAGACCTACTCAACAGGTGAATATGTATGCGCGAAGAGAC	1140
Db	1859	GTGTGTGAAGCTGCAGCCCCAGACCTACTCAACAGGTGAATATGTATGCGCGAAGAGAC	1918
QY	1141	ATTGGCCCAAGAGATGTACATATCCGAGAGGTTCACTGCGCTGTGTGAGCATGATGAT	1200
Db	1919	ATTGGCCCAAGAGATGTACATATCCGAGAGGTTCACTGCGCTGTGTGAGCATGATGAT	1978
QY	1201	ATCACACAGTATGTGCTGTCTGCGTGCGAGGGTCTAATTGGGGAGATCAGATATCAAC	1260
Db	1979	ATCACACAGTATGTGCTGTCTGCGTGCGAGGGTCTAATTGGGGAGATCAGATATCAAC	2038
QY	1261	ATCAAAGGGAAATCTCTGGGAAACCGCGCACAGCCAAATCAAGAGCTTAGTTATTCA	1320
Db	2039	ATCAAAGGGAAATCTCTGGGAAACCGCGCACAGCCAAATCAAGAGCTTAGTTATTCA	2098
QY	1321	GACCTATTCTGCTGAGGAAAGAGAGACTGCGGGAGTGTCTGAGCGAGTATCCAAAGCA	1380
Db	2099	GACCTATTCTGCTGAGGAAAGAGAGACTGCGGGAGTGTCTGAGCGAGTATCCAAAGCA	2158
QY	1381	CAGACCATCATGAGAGAGAAAGACGTGATCTCGCTGAGAAATGAACAAAGTTGAGAGTG	1440
Db	2159	CAGACCATCATGAGAGAGAAAGACGTGATCTCGCTGAGAAATGAACAAAGTTGAGAGTG	2218
QY	1441	AATGCTGAGGAGCTGAGATGACCTCTGAGAGAGCCACAGAGTCCCGCTTACGAGGCTTA	1500
Db	2219	AATGCTGAGGAGCTGAGATGACCTCTGAGAGAGCCACAGAGTCCCGCTTACGAGGCTTA	2278
QY	1501	GACCAAGAGCTGAGTGAATCTTACAACCAAGTTTGTCTGCTCTGCTGAGCTGAGAGTCC	1560
Db	2279	GACCAAGAGCTGAGTGAATCTTACAACCAAGTTTGTCTGCTCTGCTGAGCTGAGAGTCC	2338
QY	1561	AGGCGACTTAAGATTGCTTACCGGATTTGAACGCTTGAGAGTGGAGCACTCGAGAGTGGCA	1620
Db	2339	AGGCGACTTAAGATTGCTTACCGGATTTGAACGCTTGAGAGTGGAGCACTCGAGAGTGGCA	2398
QY	1621	ATGCTCCAGAGCACTGCTGAGGCTGATGACGAGGGTGAGCTTGAGAGGAGACTTCCAAA	1680
Db	2399	ATGCTCCAGAGCACTGCTGAGGCTGATGACGAGGGTGAGCTTGAGAGGAGACTTCCAAA	2458
QY	1681	GATGAAAGAGGCGAGGCGACGACAGAGAGAACCCCAAGTCCAAAGTGA	1728
Db	2459	GATGAAAGAGGCGAGGCGACGACAGAGAGAACCCCAAGTCCAAAGTGA	2506

```

: TITLE OF INVENTION: ISOLATED HUMAN TRANSPORTER PROTEINS,
: TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING HUM AN TRANSPORTER PROTEINS,
: TITLE OF INVENTION: AND USES THEREOF
: FILE REFERENCE: C1000663
: CURRENT APPLICATION NUMBER: US/09/735,932
: CURRENT FILING DATE: 2000-12-14
: NUMBER OF SEQ ID NOS: 4
: SOFTWARE: FastSeq for Windows Version 4.0
: SEQ ID NO 1
: LENGTH: 1755
: TYPE: DNA
: ORGANISM: Human
: US-09-735-932-1

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Query Match	99.6%	Score 1721.6;	DB 9;	Length 1755;
Best Local Similarity	99.8%;	Pred. No. 0;		
Matches 1724; Conservative	0;	Mismatches 4;	Indels 0;	Gaps 0;

QY	ATGACCACGAGACACCAAATGAAACAACAGAGTCCAGACCCACACCCATCCAGAGCC	60
Db	11 ATGACCACGAGACACCAAATGAAACAACAGAGTCCAGACCCACACCCATCCAGAGCC	70
QY	61 AGGAAGTTGCTGCTCTGCTGAGACCCATCTGAGGATTAATCTACTACTGTTGCTGAACAA	120
Db	71 AGGAAGTTGCTGCTCTGCTGAGACCCATCTGAGGATTAATCTACTACTGTTGCTGAACAA	130
QY	121 ATGAGCTTCCAGATATGATTAACCTCATCACTCCGTGTGACAGACCTGCTTCCCCGAC	180
Db	131 ATGAGCTTCCAGATATGATTAACCTCATCACTCCGTGTGACAGACCTGCTTCCCCGAC	190
QY	181 TTGCAGACAGGTTATCTGATGCGCTGTTGTGTGCTGGAATACACAGATACACCTGCTATAC	240
Db	191 TTGCAGACAGGTTATCTGATGCGCTGTTGTGTGCTGGAATACACAGATACACCTGCTATAC	250
QY	241 CTACTGACATGTTGTGTGCGCTTCCACACAGGATTTCTTGGAACAGGGCATCTGTGTGTG	300
Db	251 CTACTGACATGTTGTGTGCGCTTCCACACAGGATTTCTTGGAACAGGGCATCTGTGTGTG	310
QY	301 GACAAAGGATAGGATATCGAGTGGCTACAGCTTGCACTGGAATTTCTTCTTGACCTGGCT	360
Db	311 GACAAAGGATAGGATATCGAGTGGCTACAGCTTGCACTGGAATTTCTTCTTGACCTGGCT	370
QY	361 TCCCTGATGCCACAGATGTGGTCTACCTAGCTGCGGCTGCGGCACACACCCACCTGAGG	420
Db	371 TCCCTGATGCCACAGATGTGGTCTACCTAGCTGCGGCTGCGGCACACACCCACCTGAGG	430
QY	421 CTGAACCGCTTTCTCCGCGCGCCCGCTCTTTCGAGGCTTTGACCGCACAGAGACCCCG	480
Db	431 CTGAACCGCTTTCTCCGCGCGCCCGCTCTTTCGAGGCTTTGACCGCACAGAGACCCCG	490
QY	481 ACAGCTTACCCAAATGCGCTTGGATTTGCACTTGACCAAGATGCTTTAATTTTGTGTGATC	540
Db	491 ACAGCTTACCCAAATGCGCTTGGATTTGCACTTGACCAAGATGCTTTAATTTTGTGTGATC	550
QY	541 CATTGGAACAGCTGCTTACTTTGCTCCCTATCCCGGTACCTGGCTTGGCGGTGACGCA	600
Db	551 CATTGGAACAGCTGCTTACTTTGCTCCCTATCCCGGTACCTGGCTTGGCGGTGACGCA	610
QY	601 TGGGTGTATCCCGGACCCCGCGGAGCTGTGGCTTTGAGCGCTTGGCGGCGCAATCCTTAT	660
Db	611 TGGGTGTATCCCGGACCCCGCGGAGCTGTGGCTTTGAGCGCTTGGCGGCGCAATCCTTAT	670
QY	661 AGCTTTTACTCTCCACGCTGATATCTGACTCAAGTGGGCGATACACCGCGCGCACCGAGG	720
Db	671 AGCTTTTACTCTCTCCACGCTGATATCTGACTCAAGTGGGCGATACACCGCGCGCACCGAGG	730
QY	721 GAAAGAAAGTACTCTTTCATGTTGGGCGACTTCCGCTGAGCCGTCATGGATTTCGCCACC	780
Db	731 GAAAGAAAGTACTCTTTCATGTTGGGCGACTTCCGCTGAGCCGTCATGGATTTCGCCACC	790
QY	781 ATCATGGGTACACATGAGCTCTGTATCTTACAAATGAACACTGACAGATGCGGCTTTCTAC	840
Db	791 ATCATGGGTACACATGAGCTCTGTATCTTACAAATGAACACTGACAGATGCGGCTTTCTAC	850

QY 841 CCAGATGATGACGCTGAGGAGGAGTACATGAGCTGACGACGCTCAACCCGCAAGCTGAG 900
 DB 851 CCGATATGACGCTGAGGAGGAGTACATGAGCTGACGACGCTCAACCCGCAAGCTGAG 910
 QY 901 CCGGAGGATTTGATGCTGATGACGACCTGAGGAGTCAACGAGGAGTCAACGAGGTA 960
 DB 911 CCGGAGGATTTGATGCTGATGACGACCTGAGGAGTCAACGAGGAGTCAACGAGGTA 970
 QY 961 GCCATCTTACAGCACTTGCCTGAGGAGGAGTCAACGAGGAGTCAACGAGGTA 1020
 DB 971 GCCATCTTACAGCACTTGCCTGAGGAGGAGTCAACGAGGAGTCAACGAGGTA 1030
 QY 1021 TCCAGCTGAGGAGGAGGAGTCAACGAGGAGTCAACGAGGAGTCAACGAGGTA 1080
 DB 1031 TCCAGCTGAGGAGGAGGAGTCAACGAGGAGTCAACGAGGAGTCAACGAGGTA 1090
 QY 1081 GTCCTGAGGAGGAGGAGGAGTCAACGAGGAGTCAACGAGGAGTCAACGAGGTA 1140
 DB 1091 GTCCTGAGGAGGAGGAGGAGTCAACGAGGAGTCAACGAGGAGTCAACGAGGTA 1150
 QY 1141 ATTGGCCAGAGAGTGAATCATCATCCGAGAGGAGTCAACGAGGAGTCAACGAGGTA 1200
 DB 1151 ATTGGCCAGAGAGTGAATCATCATCCGAGAGGAGTCAACGAGGAGTCAACGAGGTA 1210
 QY 1201 ATGACAGAGTGTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1260
 DB 1211 ATGACAGAGTGTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1270
 QY 1261 ATGACAGAGTGTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1320
 DB 1271 ATGACAGAGTGTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1330
 QY 1321 GACCTTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1380
 DB 1331 GACCTTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 1390
 QY 1381 CAGACCATCATGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 1440
 DB 1391 CAGACCATCATGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 1450
 QY 1441 AATGCTGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 1500
 DB 1451 AATGCTGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 1510
 QY 1501 GACGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 1560
 DB 1511 GACGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 1570
 QY 1561 AGCGGACCTTAAGATGCTTAAGATGCTTAAGATGCTTAAGATGCTTAAGATGCTTAAGAT 1620
 DB 1571 AGCGGACCTTAAGATGCTTAAGATGCTTAAGATGCTTAAGATGCTTAAGATGCTTAAGAT 1630
 QY 1621 ATGCGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 1680
 DB 1631 ATGCGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 1690
 QY 1681 GATGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 1728
 DB 1691 GATGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 1738

RESULT 9
 US-10-207-951-1
 ; Sequence 1, Application US/10207951
 ; Publication No. US2003013156A1
 ; GENERAL INFORMATION:
 ; APPLICANT: Kari GUEGLER et al.
 ; TITLE OF INVENTION: ISOLATED HUMAN TRANSPORTER PROTEINS,
 ; TITLE OF INVENTION: NUCLEIC ACID MOLECULES ENCODING HUMAN TRANSPORTER PROTEINS
 ; FILE REFERENCE: AND USES THEREOF
 ; CURRENT APPLICATION NUMBER: US/10/207,951

; CURRENT FILING DATE: 2002-07-31
 ; PRIOR APPLICATION NUMBER: 09/735,932
 ; PRIOR FILING DATE: 2000-12-14
 ; PRIOR APPLICATION NUMBER: 60/211,223
 ; NUMBER OF SEQ ID NOS: 25
 ; SOFTWARE: FASTSEQ for Windows Version 4.0
 ; SEQ ID NO 1
 ; LENGTH: 1758
 ; TYPE: DNA
 ; ORGANISM: Homo sapiens
 ; FEATURE:
 ; NAME/KEY: misc_feature
 ; LOCATION: (1)-(1758)
 ; OTHER INFORMATION: n = A,T,C or G
 US-10-207-951-1

Query Match 99.6%; Score 1721.6; DB 15; Length 1758;
 Best Local Similarity 99.8%; Pred. No. 0;
 Matches 1724; Conservative 0; Mismatches 4; Indels 0; Gaps 0;

QY 1 ATGAGCCAGAGACCCAAAGTGAAGACACAGAGTCCATCCCCAGCCCATCAAGGCC 60
 DB 11 ATGAGCCAGAGACCCAAAGTGAAGACACAGAGTCCATCCCCAGCCCATCAAGGCC 70
 QY 61 AGGAAGTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 120
 DB 71 AGGAAGTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 130
 QY 121 ATGCTTCTCCAGTCAATGATTAATCACTCATCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 180
 DB 131 ATGCTTCTCCAGTCAATGATTAATCACTCATCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 190
 QY 181 TTGAGGAGGAGTATCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 240
 DB 191 TTGAGGAGGAGTATCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 250
 QY 241 CTACTAGCATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 300
 DB 251 CTACTAGCATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 310
 QY 301 GACAAAGGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 360
 DB 311 GACAAAGGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 370
 QY 361 TCCGATGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 420
 DB 371 TCCGATGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAGGAG 430
 QY 421 CTGAACCGCTTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 480
 DB 431 CTGAACCGCTTCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCTGCT 490
 QY 481 ACACTTACCCAAATGCTTTCGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 540
 DB 491 ACACTTACCCAAATGCTTTCGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 550
 QY 541 CATTGGAACAGTGTGCTTAATCTTTCGATGATGATGATGATGATGATGATGATGATGATGATGAT 600
 DB 551 CATTGGAACAGTGTGCTTAATCTTTCGATGATGATGATGATGATGATGATGATGATGATGATGAT 610
 QY 601 TGGGTGATCCCGGAGCCCGGAGCCGCTTTCGATGATGATGATGATGATGATGATGATGATGAT 660
 DB 611 TGGGTGATCCCGGAGCCCGGAGCCGCTTTCGATGATGATGATGATGATGATGATGATGATGAT 670
 QY 661 AGCTTTTACTTCTGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 720
 DB 671 AGCTTTTACTTCTGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 730
 QY 721 GAAGAAGATGATCTTTCATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 780
 DB 731 GAAGAAGATGATCTTTCATGATGATGATGATGATGATGATGATGATGATGATGATGATGATGAT 790

Membrane spanning structure and domains:

Helix	Begin	End	Score	Certainty
1	34	54	1.356	Certain
2	113	133	1.402	Certain
3	176	196	1.371	Certain
4	222	242	1.207	Certain
5	255	275	2.033	Certain
6	406	426	0.915	Putative

BLAST Alignment to Top Hit:

>gi|2493746|sp|Q64359|CNGX RAT CYCLIC-NUCLEOTIDE-GATED OLFACTORY CHANNEL OCNC2 SUBUNIT >gi|2143887|pir||I59327 olfactory cyclic nucleotide gated cation channel - rat
>gi|538129|gb|AAA21464.1| (U12623) cyclic nucleotide gated cation channel [Rattus norvegicus]
>gi|548084|gb|AAA64748.1| (U12425) olfactory cyclic nucleotide-gated channel [Rattus norvegicus]
Length = 575

Score = 1039 bits (2657), Expect = 0.0

Identities = 517/580 (89%), Positives = 535/580 (92%), Gaps = 5/580 (0%)

Query: 1 MSQDTKVKTTESPPAPSKARKLLPVLDPSGDYYYWWLNTMVFPVMYNLIILVCRACFPD 60
MSQD KVKTTES+PPAP+KARK LPVLDPSGDYYYWWLNTMVFP+MYNLII+VCRACFPD
Sbjct: 1 MSQDGKVKTTSTPPAPTARKKWLPLVLDPSGDYYYWWLNTMVFPIMYNLIIVVCRACFPD 60
Query: 61 LQHGYLVAVWLVDYTSDDLlyLLDMVVRFTGTQISWNRGILGGGTRGKDLRVRLPSAPGSF 120
LQH YLVAV VLDYTSDDLlyLLD+ VRFTGT + +GIL K + SF
Sbjct: 61 LQHSYLVAVFVLDYTSDDLlyLLDIGVRFTGTGFLE--QGIL---VVDKGMASRYVRTWSF 115
Query: 121 FLPGFELMPTDVVYVRLGPHTPTLRLNRFLRAPRLFEAFDRTETRTAYPNAFRIAKMLY 180
L L+PTD YV+LGPH PTLRLNRFLR PRLFEAFDRTETRTAYPNAFRIAKMLY
Sbjct: 116 LLDLASLVPTDAAVYVQLGPHIPTLRLNRFLRVPRLEAFDRTETRTAYPNAFRIAKMLY 175
Query: 181 IFVVIHWNNSCLYFALSRYLGFGRDWVYPDPAQPGFERLRRQYLYSFYFSTLILTTVGDT 240
IFVVIHWNNSCLYFALSRYLGFGRDWVYPDPAQPGFERLRRQYLYSFYFSTLILTTVGDT
Sbjct: 176 IFVVIHWNNSCLYFALSRYLGFGRDWVYPDPAQPGFERLRRQYLYSFYFSTLILTTVGDT 235
Query: 241 PPPAREEEYLEFMVGDFLLAVMGFATIMGSMSSVIYNMNTADAAFYPDHALVKKYMKLQHV 300
P P REEEYLEFMVGDFLLAVMGFATIMGSMSSVIYNMNTADAAFYPDHALVKKYMKLQHV
Sbjct: 236 PLPDREEEYLEFMVGDFLLAVMGFATIMGSMSSVIYNMNTADAAFYPDHALVKKYMKLQHV 295
Query: 301 NRKLERRVIDWYQHLQINKKMTNEVAILQHLPERLRAEVAVSVHLSTLSRVQIFQNCAS 360
N++LERRVIDWYQHLQINKKMTNEVAILQHLPERLRAEVAVSVHLSTLSRVQIFQNCAS
Sbjct: 296 NRKLERRVIDWYQHLQINKKMTNEVAILQHLPERLRAEVAVSVHLSTLSRVQIFQNCAS 355
Query: 361 LLEELVLKLQPTYSPEGYVCRKGDIGQEMYIIREGQLAVVADDGITQYAVLGAGLYFGE 420
LLEELVLKLQPTYSPEGYVCRKGDIG+EMYIIREGQLAVVADDG+TQYAVLGAGLYFGE
Sbjct: 356 LLEELVLKLQPTYSPEGYVCRKGDIGREMYIIREGQLAVVADDGVTQYAVLGAGLYFGE 415
Query: 421 ISIINIKGNMNGNRRTANIKSLGYSDLFCLSKEDLREVLSEYPQAQTIMEEKGREILLKM 480
ISIINIKGNMNGNRRTANIKSLGYSDLFCLSKEDLREVLSEYPQAQ +MEEKGREILLKM
Sbjct: 416 ISIINIKGNMNGNRRTANIKSLGYSDLFCLSKEDLREVLSEYPQAQAVMEEKGREILLKM 475
Query: 481 NKLDVNAEAAEIALQEATESRLRGLDQQLDDLQTKFARLLAELESSALKIAYRIERLEWQ 540
NKLDVNAEAAEIALQEATESRL+GLDQQLDDLQTKFARLLAELESSALKIAYRIERLEWQ
Sbjct: 476 NKLDVNAEAAEIALQEATESRLKGLDQQLDDLQTKFARLLAELESSALKIAYRIERLEWQ 535
Query: 541 TREWPMPEDLAEADDEGEPEEGTSKDEEGRASQEGPPGPE 580
TREWPMPE+ EADDE EP EGTSKD EG+A Q GP G E
Sbjct: 536 TREWPMPEDMGEADDEAEPGEGTSKDGEKAGQAGPSGIE 575

← identical to SEQ ID NO:1

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1  ATGAGCCAGG ACACCAAAGT GAAGACAACA GAGTCCAGTC CCCCAGCCCC
51 ATCCAAGGCC AGGAAGTTGC TGCCTGTCCT GGACCCATCT GGGGATTACT
101 ACTACTGGTG GCTGAACACA ATGGTCTTCC CAGTCATGTA TAACCTCATC
151 ATCCTCGTGT GCAGAGCCTG CTTCCCCGAC TTGCAGCACG GTTATCTGGT
201 GGCCTGGTTG GTGCTGGACT ACACGAGTGA CCTGCTATAC CTACTAGACA
251 TGGTGGTGCG CTTCACACA GGTGAGATT CTTGGAACAG GGGCATCCTG
301 GGTGGTGGGA CAAGGGGTAA GGATCTCCGA GTTCGCCTAC CGTCCGCACC
351 TGGGAGTTTC TTTCTTGGAC CTGGCTTCCT GATGCCCCACA GATGTGGTCT
401 ACGTGCGGCT GGGCCCGCAC ACACCCACCC TGAGGCTGAA CCGCTTTCTC
451 CGCGCGCCCC GCCTCTTCGA GGCCTTCGAC CGCACAGAGA CCCGCACAGC
501 TTACCCAAAT GCCTTTTCGA TTGCCAAGCT GATGCTTTAC ATTTTTGTCTG
551 TCATCCATTG GAACAGCTGC CTATACTTTG CCCTATCCCG GTACCTGGGC
601 TTCGGGCGTG ACGCATGGGT GTACCCGGAC CCCGCGCAGC CTGGCTTTGA
651 GCGCCTGCGG CGCCAGTACC TCTATAGCTT TACTTTCTCC ACGCTGATAC
701 TGACTACAGT GGGCGATACA CCGCCGCCAG CCAGGGAAGA AGAGTACCTC
751 TTCATGGTGG GCGACTTCCT GCTGGCCGTC ATGGGTTTCG CCACCATCAT
801 GGGTAGCATG AGCTCTGTCA TCTACAACAT GAACACTGCA GATGCGGCTT
851 TCTACCCAGA TCATGCACTG GTGAAGAAGT ACATGAAGCT GCAGCACGTC
901 AACCGCAAGC TGGAGCGCG AGTTATTGAC TGGTATCAGC ACCTGCAGAT
951 CAACAAGAAG ATGACCAACG AGGTAGCCAT CTTACAGCAC TTGCCTGAGC
1001 GGCTGCGGGC AGAAGTGGCT GTGTCTGTGC ACCTGTCCAC TCTGAGCCGG
1051 GTGCAGATCT TTCAGAACTG TGAGGCCAGC CTGCTGGAGG AGCTGGTGCT
1101 GAAGCTGCAG CCCAGACCT ACTCACCAGG TGAATATGTA TGCCGCAAAG
1151 GAGACATTGG CCAAGAGATG TACATCATCC GAGAGGGTCA ACTGGCCGTG
1201 GTGGCAGATG ATGGTATCAC ACAGTATGCT GTGCTCGGTG CAGGGCTCTA
1251 CTTTGGGGAG ATCAGCATCA TCAACATCAA AGGGAACATG TCTGGGAACC
1301 GCCGCACAGC CAACATCAAG AGCCTAGGTT ATTCAGACCT ATTCGCTG
1351 AGCAAGGAGG ACCTGCGGGA GGTGCTGAGC GAGTATCCAC AAGCACAGAC
1401 CATCATGGAG GAGAAAGGAC GTGAGATCCT GCTGAAAATG AACAAAGTTGG
1451 ACGTGAATGC TGAGGCAGCT GAGATCGCCC TGCAGGAGGC CACAGAGTCC
1501 CGGCTACGAG GCCTAGACCA CGAGCTGGAT GATCTACAGA CCAAGTTTGC
1551 TCGCCTCCTG GCTGAGCTGG AGTCCAGCGC ACTTAAGATT GCTTACCGCA
1601 TTGAACGGCT GGAGTGGCAG ACTCGAGAGT GGCCAATGCC CGAGGACCTG
1651 GCTGAGGCTG ATGACGAGGG TGAGCCTGAG GAGGGAAGTT CCAAAGATGA
1701 AGAGGGCAGG GCCAGCCAGG AGGGACCCCC AGGTCCAGAG TGA

```

← identical to
SEQ ID NO: 3

FEATURES:

Start: 1
Stop: 1741

HOMOLOGOUS PROTEINS:

Top 10 BLAST Hits:

gi 2493746 sp Q64359 CNGX_RAT CYCLIC-NUCLEOTIDE-GATED OLFACTORY...	1039	0.0
gi 2493747 sp Q29441 CNG3_BOVIN CYCLIC-NUCLEOTIDE-GATED CATION ...	580	e-165
gi 7688041 emb CAB89685.1 (AJ243933) cyclic nucleotide-gated c...	577	e-163
gi 2780734 dbj BAA24353.1 (AB002801) cyclic nucleotide-gated c...	576	e-163
gi 399230 sp Q03041 CNG2_BOVIN CYCLIC-NUCLEOTIDE-GATED OLFACTOR...	575	e-163
gi 4826633 emb CAB42891.1 (AJ238239) cyclic nucleotide-gated c...	573	e-162
gi 2493751 sp Q90805 CNG1_CHICK CYCLIC NUCLEOTIDE GATED CHANNEL...	573	e-162
gi 346350 pir A44842 cGMP-gated ion channel protein - human >g...	570	e-161
gi 479946 pir S35691 cyclic nucleotide-gated channel protein -...	570	e-161
gi 2493745 sp Q28718 CNG2_RABBIT CYCLIC-NUCLEOTIDE-GATED OLFACTO...	570	e-161

blast to dbEST:
no match

FIGURE 1